WE CLAIM:

1. A system for implementing surgical procedures comprising:

an ultrasonic surgical handpiece having an end-effector;

a generator console for controlling the handpiece;

an electrical connection connecting the handpiece and the console, wherein the console sends a drive current to drive the handpiece which imparts ultrasonic longitudinal movement to the end-effector; and

a finger-operated switch provided on a housing of the handpiece, the switch activating the handpiece at a first power level if a monitored pressure on the switch reaches a high threshold, and deactivating the handpiece if the monitored pressure reaches a low threshold.

2. The system of claim 1 wherein the switch is distally located on the handpiece.

3. The system of claim 1 wherein the handpiece is operated at a power level selected from a plurality of power levels if the monitored pressure reaches a specific threshold of a respective plurality of thresholds corresponding to the plurality of power levels.

4. The system of claim 1 wherein the pressure is monitored by a sensor located inside the housing of the handpiece selected from a group consisting of an electro-mechanical switch, a force-sensitive resistor, force sensitive capacitor, strain gauge, magnet, ferromagnet, piezo film and piezo ceramic.

5. The system of claim 1 wherein the switch comprises a pair of switch button members.

6. The system of claim 1 wherein the switch further comprises an inactive center region for resting of a finger and serving as a tactile reference.

7. The system of claim 1 wherein the switch is generally user-alignable with the end-effector.

8. The system of claim 1 wherein the switch is symmetrically aligned and indexed to the end-effector.

9. The system of claim 5 wherein each of the switch button members comprises:

an upper surface and a lower surface;

a first post and a second post extending outwardly away from the lower surface; and

a first raised section and a second raised section on the upper surface, said raised section being supported by a center recessed section formed therebetween.

10. The system of claim 9 wherein the first post is disposed generally opposite the first raised section and the second post is disposed generally opposite the second raised section so that the first post is directed toward the interior of the handpiece when the first raised section is depressed and the second post is directed toward the interior of the handpiece when the second raised section is depressed.

11. The system of claim 1 wherein the switch is a ring switch with a ring-like circumferential appendage on the handpiece that is located near a distal end of the handpiece.

12. The system of claim 11 wherein the ring switch comprises a capacitive transducer having a center ring, an outer layer of elastomer on the exterior of the center ring, and a ring electrode on top of the ring switch.

13. The system of claim 11 further including multicolor illumination and a control such that the ring switch becomes illuminated in difference colors corresponding to a plurality of pressure thresholds.

14. The system of claim 11 wherein the ring switch is a sensor comprising a piezo portion and a substrate adjacently disposed with the piezo portion, the ring switch outputting a first polarity signal when pressure is applied to the piezo portion and outputting a second opposing polarity signal when pressure is applied to the substrate.

15. The system of claim 11 wherein the ring switch is a sensor comprising a first piezo ring, a second piezo ring, and a center ring disposed between the first piezo ring and the second piezo ring, the ring switch outputting a first polarity signal when pressure is applied to the first piezo ring and outputting a second opposing polarity signal when pressure is applied to the second piezo ring.

16. The system of claim 11 wherein the ring switch comprises a first seal and a second seal, and a piezo ring disposed between the first seal and the second seal, the ring switch outputting a first polarity signal when pressure is applied in one direction to the piezo ring and outputting a second opposing polarity signal when pressure is applied in another direction to the piezo ring.

17. The system of claim 11 wherein the ring switch comprises a pair of outer rings, a center ring disposed between the outer rings, and a pair of flexible rings respectfully located on the exterior of the outer rings to support the center ring with the outer rings, and a pair of piezo rings fixed to two sides of bottom of the center ring.

18. The system of claim 11 wherein the ring switch comprises a support ring and a pair of adjacently located activation zones which are circumferential bands serially connected with the support ring.

19. The system of claim 18 wherein the activation zones consist of one of an electro-mechanical switch, force sensitive resistors, force sensitive capacitors, strain gauges, magnets, and piezo material.

20. The system of claim 18 wherein the ring switch further comprises a middle rib disposed between the activation zones, the middle rib serving as a divider for the activation zones.

21. The system of claim 20 further including multicolor illumination and a control so that the middle rib becomes illuminated in difference colors corresponding to a plurality of pressure thresholds.

22. The system of claim 18 wherein the ring switch further comprises a distal rib located on a distal end of the activation zones.

23. The system of claim 22 further including multicolor illumination and a control so that the distal rib becomes illuminated in difference colors corresponding to a plurality of thresholds.

24. The system of claim 18 wherein the ring switch further comprises a proximal rib on a proximal end of the activation zones.

25. The system of claim 24 further including multicolor illumination and a control so that the proximal rib becomes illuminated in difference colors corresponding to a plurality of thresholds.

26. The system of claim 18 wherein each of the activation zones is further divided into subzones corresponding to variable power levels of the plurality of pressure thresholds.

27. The system of claim 1 further comprising switches on opposing sides of the handpiece that generally avoid inadvertent activation.

28. The system of claim 1 wherein the switch is a hysteresis switch.

29. The system of claim 11 wherein the ring switch further comprises a sliding barrier covering a portion of the circumferential appendage.

30. The system of claim 1 wherein the switch provides its switching functionality according to a lagging effect as the monitored pressured on the switch is

changed.

31. A system for implementing surgical procedures comprising:

an ultrasonic surgical handpiece having an end-effector;

a generator console for controlling the handpiece;

an electrical connection connecting the handpiece and the console, wherein the console sends a drive current to drive the handpiece which imparts ultrasonic longitudinal movement to the end-effector; and

a finger-operated switch provided on a housing of the handpiece, the switch activating the handpiece at a first power level and deactivating the handpiece if a low threshold is reached.

32. The system of claim 31 wherein the switch is distally located on the handpiece.

33. The system of claim 31 wherein the switch further comprises a sensor located inside the housing of the handpiece selected from a group consisting of an electro-mechanical switch, a force-sensitive resistor, force sensitive capacitor, strain gauge, magnet, ferromagnet, piezo film and piezo ceramic.

34. The system of claim 31 wherein the switch comprises a pair of switch button members.

35. The system of claim 31 wherein the switch further comprises an inactive center region for resting of a finger and serving as a tactile reference.

36. The system of claim 31 wherein the switch is generally user-alignable with the end-effector.

37. The system of claim 31 wherein the switch is symmetrically aligned and indexed to the end-effector.

38. The system of claim 34 wherein each of the switch button members comprises:

an upper surface and a lower surface;

a first post and a second post extending outwardly away from the lower surface; and

a first raised section and a second raised section on the upper surface, said raised section being supported by a center recessed section formed therebetween.

39. The system of claim 38 wherein the first post is disposed generally opposite the first raised section and the second post is disposed generally opposite the second raised section so that the first post is directed toward the interior of the handpiece when the first raised section is depressed and the second post is directed toward the interior of the

handpiece when the second raised section is depressed.

40. The system of claim 31 wherein the switch activates the handpiece at the first power level if a monitored pressure on the switch reaches a high threshold, and deactivating the handpiece if the monitored pressure reaches the low threshold.

41. The system of claim 40 wherein the switch is a ring switch with a ring-like circumferential appendage on the handpiece that is located near a distal end of the handpiece.

42. The system of claim 41 wherein the ring switch comprises a capacitive transducer having a center ring, an outer layer of elastomer on the exterior of the center ring, and a ring electrode on top of the ring switch.

43. The system of claim 41 further including multicolor illumination and a control such that the ring switch becomes illuminated in difference colors corresponding to a plurality of pressure thresholds.

44. The system of claim 41 wherein the ring switch is a sensor comprising a piezo portion and a substrate adjacently disposed with the piezo portion, the ring switch outputting a first polarity signal when pressure is applied to the piezo portion and outputting a second opposing polarity signal when pressure is applied to the substrate.

45. The system of claim 41 wherein the ring switch is a sensor comprising a first piezo ring, a second piezo ring, and a center ring disposed between the first piezo ring and the second piezo ring, the ring switch outputting a first polarity signal when pressure is applied to the first piezo ring and outputting a second opposing polarity signal when pressure is applied to the second piezo ring.

46. The system of claim 41 wherein the ring switch comprises a first seal and a second seal, and a piezo ring disposed between the first seal and the second seal, the ring switch outputting a first polarity signal when pressure is applied in one direction to the piezo ring and outputting a second opposing polarity signal when pressure is applied in another direction to the piezo ring.

47. The system of claim 41 wherein the ring switch comprises a pair of outer rings, a center ring disposed between the outer rings, and a pair of flexible rings respectfully located on the exterior of the outer rings to support the center ring with the outer rings, and a pair of piezo rings fixed to two sides of bottom of the center ring.

48. The system of claim 41 wherein the ring switch comprises a support ring and a pair of adjacently located activation zones which are circumferential bands serially connected with the support ring.

49. The system of claim 48 wherein the activation zones consist of one of an electro-mechanical switch, force sensitive resistors, force sensitive capacitors, strain gauges, magnets, and piezo material.

50. The system of claim 48 wherein the ring switch further comprises a middle rib disposed between the activation zones, the middle rib serving as a divider for the activation zones.

51. The system of claim 50 further including multicolor illumination and a control so that the middle rib becomes illuminated in difference colors corresponding to a plurality of pressure thresholds.

52. The system of claim 48 wherein the ring switch further comprises a distal rib located on a distal end of the activation zones.

53. The system of claim 52 further including multicolor illumination and a control so that the distal rib becomes illuminated in difference colors corresponding to a plurality of thresholds.

54. The system of claim 48 wherein the ring switch further comprises a proximal rib on a proximal end of the activation zones.

55. The system of claim 54 further including multicolor illumination and a control so that the proximal rib becomes illuminated in difference colors corresponding to a plurality of thresholds.

56. The system of claim 48 wherein each of the activation zones is further divided into subzones corresponding to variable power levels of the plurality of pressure thresholds.

57. The system of claim 31 further comprising switches on opposing sides of the handpiece that generally avoid inadvertent activation.

58. The system of claim 31 wherein the switch is a hysteresis switch.

59. The system of claim 41 wherein the ring switch further comprises a sliding barrier covering a portion of the circumferential appendage.

60. The system of claim 48 wherein the ring switch further comprises a sliding barrier covering at least one of the activation zones.

61. A method for controlling an ultrasonic surgical handpiece using a switch located on a housing of the handpiece, comprising the steps of:

monitoring pressure applied to the housing using the switch;

activating the handpiece at a first power level if the monitored pressure reaches a high threshold; and

deactivating the handpiece if the monitored pressure reaches a low threshold.

62. The method of claim 61 further comprising the step of operating the handpiece at a power level selected from a plurality of power levels if the monitored pressure reaches a specific threshold of a respective plurality of thresholds corresponding to the plurality of power levels.

63. The method of claim 61 wherein the pressure is monitored by a sensor located inside the housing of the handpiece selected from a group consisting of an electro-mechanical switch, a force-sensitive resistor, force sensitive capacitor, strain gauge, magnet, ferromagnet, piezo film and piezo ceramic.

64. The method of claim 61 wherein the switch is generally aligned with the blade as the blade is rotated.

65. The method of claim 61 wherein the switch provides its switching

functionality according to a lagging effect as the monitored pressured is changed.

66. An ultrasonic surgical handpiece having a housing with a finger-operated switch located thereon, the switch having a sensor for monitoring pressure thereon so that the handpiece is placed in an operative mode when the sensor monitors a pressure above a first threshold and is placed in an inoperative mode when the pressure is below a second threshold.

67. The handpiece of claim 66 wherein the first and second thresholds are the same.

68. The handpiece of claim 66 wherein the first threshold is at a higher pressure than the second threshold.